ARC 2917C

UTILITIES DIVISION[199]

Adopted and Filed

Pursuant to Iowa Code sections 17A.4, 476.6A, and 476.58, the Utilities Board (Board) gives notice that on December 28, 2016, the Board issued an order in Docket No. RMU-2016-0003, In re: Review of Electric Interconnection of Distributed Generation Facilities Rules [199 IAC Chapter 45], "Order Adopting Amendments," amending Chapter 45 of the Board's rules.

Chapter 45 is designed to offer standardized requirements, forms, and procedures for smaller facilities and to make the interconnection process more transparent and less complex for larger facilities. The current interconnection rules were adopted in 2010 and incorporated the then-current best practices for interconnection agreements and procedures. The amendments to Chapter 45 incorporate current best practices and incorporate newly adopted Iowa Code section 476.58.

The Board is conducting a comprehensive review of its rules and, as part of that review, is attempting to make the rules more readable, to streamline reporting requirements in the rules, and to transition away from providing forms within the rules. The amendments to Chapter 45 reflect those goals.

The order approving this Adopted and Filed rule making can be found on the Board's Electronic Filing System (EFS) Web site, http://efs.iowa.gov, in Docket No. RMU-2016-0003.

Notice of Intended Action was published in the Iowa Administrative Bulletin as **ARC 2673C** on August 17, 2016. The Board received public comments from interested persons regarding the proposed amendments. The Board has modified several of the amendments proposed in the Notice of Intended Action based on the comments received. The Board's order approving this Adopted and Filed rule making describes the comments received and any amendments the Board adopted based on those comments.

The Board adopted these amendments on December 28, 2016.

After analysis and review of this rule making, no negative impacts on jobs have been found.

These amendments are intended to implement Iowa Code sections 17A.4, 476.6A, and 476.58.

These amendments will become effective February 22, 2017.

The following amendments are adopted.

ITEM 1. Amend the following definitions in rule **199—45.1(476)**:

"Certificate of completion" means the ~~Standard~~ Certificate of Completion ~~in Appendix B (199—45.15(476))~~ form that contains information about the interconnection equipment to be used, its installation, and local inspections.

"Distributed generation facility" means a qualifying facility, ~~or~~ an AEP facility, or an energy storage facility.

"Nationally recognized testing laboratory" or *"NRTL"* means a qualified private organization that meets the requirements of the Occupational Safety and Health Administration's (OSHA) regulations. See 29 CFR 1910.7 as amended through ~~April 9, 2014~~ February 22, 2017. NRTLs perform independent safety testing and product certification. Each NRTL shall meet the requirements as set forth by OSHA in its NRTL program.

"Parallel operation" or *"parallel"* means a distributed generation facility that is connected electrically to the electric distribution system for longer than 100 milliseconds continuously.

"UL Standard 1741" means the standard titled "Inverters, Converters, ~~and~~ Controllers, and Interconnection System Equipment for Use ~~in Independent Power Systems~~ with Distributed Energy Resources," January 28, 2010, edition, Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ITEM 2. Adopt the following **new** definitions of "Disconnection device" and "Electric meter" in rule **199—45.1(476)**:

"Disconnection device" means a lockable visual disconnect or other disconnection device capable of isolating, disconnecting, and de-energizing the residual voltage in a distributed generation facility.

"Electric meter" means a device used by an electric utility that measures and registers the integral of an electrical quantity with respect to time.

ITEM 3. Rescind the definitions of "Draw-out type circuit breaker" and "Standard distributed generation interconnection agreement" in rule **199—45.1(476)**.

ITEM 4. Amend rule 199—45.2(476) as follows:

199—45.2(476) Scope.

45.2(1) This chapter applies to utilities, and distributed generation facilities seeking to operate in parallel with utilities, provided the facilities are not subject to the interconnection requirements of an affected system, the Federal Energy Regulatory Commission (FERC), the ~~Midwest~~ Midcontinent Independent ~~Transmission~~ System Operator, Inc. (MISO), the Southwest Power Pool (SPP), the Midwest Reliability Organization (MRO), or the ~~Mid-Continent Area Power Pool (MAPP)~~ SERC Reliability Corporation (SERC).

45.2(2) If the nameplate capacity of the facility is greater than 10 MVA, the interconnection customer and the utility shall start with the Level 4 review process and agreements under ~~rules~~ rule 199—45.11(476)~~, 199—45.17(476), 199—45.18(476), 199—45.19(476), and 199—45.20(476)~~, and modify the process and agreements as needed by mutual agreement. In addition, the interconnection customer and the utility shall start with the technical standards under rule 199—45.3(476) and modify the standards as needed by mutual agreement. If the interconnection customer and the utility cannot reach mutual agreement, the interconnection customer may seek resolution through the rule 199—45.12(476) dispute process.

ITEM 5. Amend subparagraph **45.3(1)"a"(1)** as follows:

(1) IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems—IEEE Standard 519-~~1992~~ 2014; and

ITEM 6. Amend paragraph **45.3(1)"c"** as follows:

c. National Electrical Code, ANSI/NFPA 70-~~2008~~ 2014.

ITEM 7. Amend subrule 45.3(2) as follows:

45.3(2) *Interconnection facilities.*

a. ~~The utility may require the~~ A distributed generation facility placed in service after July 1, 2015, is required to have ~~the capability to be isolated from the utility, either by means of a lockable, visible-break isolation device accessible by the utility, or by means of a lockable isolation device whose status is indicated and is accessible by the utility. If an isolation device is required by the utility, the~~ installed a disconnection device. The disconnection device shall be installed, owned, and maintained by the owner of the distributed generation facility ~~and located electrically between the distributed generation facility and the point of interconnection. A draw-out type of circuit breaker accessible to the utility with a provision for padlocking at the drawn-out position satisfies the requirement for an isolation device~~ and shall be easily visible and adjacent to an interconnection customer's electric meter at the facility. Disconnection devices are considered easily visible and adjacent: for a home or business, up to ten feet away from the meter and within the line of sight of the meter, at a height of 30 inches to 72 inches above final grade; or for large areas with multiple buildings that require electric service, up to 30 feet away from the meter and within the line of sight of the meter, at a height of 30 inches to 72 inches above final grade. The disconnection device shall be labeled with a permanently attached sign with clearly visible letters that give procedures/directions for disconnecting the distributed generation facility.

(1) If an interconnection customer with distributed generation facilities installed prior to July 1, 2015, adds generation capacity to its existing system that does not require upgrades to the electric meter or electrical service, a disconnection device is not required, unless required by the electric utility's tariff. The customer must notify the electric utility before the generation capacity is added to the existing system.

(2) If an interconnection customer with distributed generation facilities installed prior to July 1, 2015, upgrades or changes its electric service, the new or modified electric service must meet all current utility electric service rule requirements.

b. For all distributed generation installations, the customer shall be required to provide and place a permanent placard no more than ten feet away from the electric meter. The placard must be visible from the electric meter. The placard must clearly identify the presence and location of the disconnection device for the distributed generation facilities on the property. The placard must be made of material that is suitable for the environment and must be designed to last for the duration of the anticipated operating life of the distributed generation facility. If no disconnection device is present, the placard shall state "no disconnection device".

If the distributed generation facility is not installed near the electric meter, an additional placard must be placed at the electric meter to provide specific information regarding the distributed generation facility and the disconnection device.

~~*b.*~~ *c.* The interconnection shall include overcurrent devices on the facility to automatically disconnect the facility at all currents that exceed the full-load current rating of the facility.

~~*c.*~~ *d.* Distributed generation facilities with a design capacity of 100 kVA or less must be equipped with automatic disconnection upon loss of electric utility-supplied voltage.

~~*d.*~~ *e.* Those facilities that produce a terminal voltage prior to the closure of the interconnection shall be provided with synchronism-check devices to prevent closure of the interconnection under conditions other than a reasonable degree of synchronization between the voltages on each side of the interconnection switch.

ITEM 8. Amend subrule 45.3(3) as follows:

45.3(3) *Access.* If ~~an isolation~~ a disconnection device is required ~~by the utility~~, ~~both~~ the operator of the distributed generation facility, ~~and~~ the utility, and emergency personnel shall have access to the ~~isolation~~ disconnection device at all times. ~~An~~ For distributed generation facilities installed prior to July 1, 2015, an interconnection customer may elect to provide the utility with access to ~~an isolation~~ a disconnection device that is contained in a building or area that may be unoccupied and locked or not otherwise accessible to the utility by installing a lockbox provided by the utility that allows ready access to the ~~isolation~~ disconnection device. The lockbox shall be in a location determined by the utility, in consultation with the customer, to be accessible by the utility. The interconnection customer shall permit the utility to affix a placard in a location of the utility's choosing that provides instructions to utility operating personnel for accessing the ~~isolation~~ disconnection device. If the utility needs to isolate the distribution generation facility, the utility shall not be held liable for any damages resulting from the actions necessary to isolate the generation facility.

ITEM 9. Amend subrule 45.3(4) as follows:

45.3(4) *Inspections and testing.* The operator of the distributed generation facility shall adopt a program of inspection and testing of the generator and its appurtenances and the interconnection facilities in order to determine necessity for replacement and repair. Such a program shall include all periodic tests and maintenance prescribed by the manufacturer. If the periodic testing of interconnection-related protective functions is not specified by the manufacturer, periodic testing shall occur at least once every five years. All interconnection-related protective functions shall be periodically tested, and a system that depends upon a battery for trip power shall be checked and logged. The operator shall maintain test reports and shall make them available upon request by the electric utility. Representatives of the utility shall have access at all reasonable hours to the interconnection equipment specified in subrule 45.3(2) for inspection and testing with reasonable prior notice to the applicant.

ITEM 10. Adopt the following **new** subrules 45.3(6) to 45.3(8):

45.3(6) *Notification.* When the distributed generation facility is placed in service, owners of interconnected distributed generation facilities are required to notify local fire departments via U.S. mail of the location of distributed generation facilities and the associated disconnection device(s). The owner is required to provide any information related to the distributed generation facility as reasonably required by that local fire department including but not limited to:

a. A site map showing property address; service point from utility company; distributed generation facility and disconnect location(s); location of rapid shutdown and battery disconnect(s), if applicable; property owner's or owner's representative's emergency contact information; utility company's emergency telephone number; and size of the distributed generation facility.

b. Information to access the disconnection device.

c. A statement from the owner verifying that the distributed generation facility was installed in accordance with the current state-adopted National Electrical Code.

45.3(7) *Disconnections.* If an interconnection customer fails to comply with the foregoing requirements of rule 199—45.3(476), the electric utility may require disconnection of the applicant's distributed generation facility until the facility complies with rule 199—45.3(476). The disconnection process shall be specified in individual electric utility tariffs or in the interconnection agreement. If separate disconnection of only the distributed generation facility is not feasible or safe, the customer's electric service may be disconnected as provided in 199—Chapter 20.

45.3(8) *Reconnections.* If a customer's distributed generation facility or electric service is disconnected due to noncompliance with rule 199—45.3(476), the customer shall be responsible for payment of any costs associated with reconnection once the facility is in compliance with the rules.

ITEM 11. Amend rule 199—45.4(476) as follows:

199—45.4(476) Interconnection requests.

45.4(1) Applicants seeking to interconnect a distributed generation facility shall submit an interconnection request to the utility that owns the electric distribution system to which interconnection is sought. Applicants shall identify in the application if they are representing a group of customers that are located in the same vicinity and whether the application requires a group interconnection study. Applicants shall use the board-approved interconnection request forms ~~approved by the board~~ and agreements that are provided on the board's Web site, http://iub.iowa.gov.

45.4(2) Preapplication request. Applicants may request a preapplication report from the utility using the following process:

a. The utility shall designate an employee or office from which information on the application process and on the affected system can be obtained through an informal request from the applicant presenting a proposed project for a specific site, which may include multiple proposed individual interconnections in close proximity and related to one project, such as a residential or commercial development proposing rooftop solar on each premises or a multiturbine wind project. The name, telephone number, and e-mail address of such contact employee or office shall be made available on the utility's Web site. Electric system information provided to the applicant should include, to the extent such provision does not violate confidentiality provisions of prior agreements or critical infrastructure requirements, relevant, available system studies, interconnection studies, and other materials useful for gaining an understanding of an interconnection at a particular point on the utility's electric distribution system. The utility shall comply with reasonable requests for such information.

b. In addition to the information described in paragraph 45.4(2)*"a,"* which may be provided in response to an informal request, an applicant may submit a formal written request form along with a nonrefundable fee of $300 for a preapplication report on a proposed project at a specific site. The utility shall provide the preapplication data described in paragraph 45.4(2)*"a"* to the applicant within 20 business days of receipt of the completed request form and payment of the $300 fee. The preapplication report produced by the utility is nonbinding, it does not confer any rights, and the applicant must still successfully apply to interconnect to the utility's system. The written preapplication report request form shall include the following information to clearly and sufficiently identify the location of the proposed point of interconnection:

(1) Proposed distributed generation facility owner's contact information, including name, address, telephone number, and e-mail address.

(2) Project location (street address with nearby cross streets and name of town).

(3) Meter number, pole number, or other equivalent information identifying the proposed point of interconnection, if available.

(4) Generator type (e.g., solar, wind, combined heat and power).

(5) Size (alternating current kW).

(6) Single or three-phase generator configuration.

(7) Stand-alone generator (whether or not there is an onsite load, not including station service).

(8) Whether or not new service is requested. If there is existing service, include the customer account number, site minimum and maximum current or proposed electric loads in kW (if available) and specify if the load is expected to change.

c. Using the information provided in the preapplication report request form in paragraph 45.4(2)*"b,"* the utility will identify the substation/area bus, bank or circuit likely to serve the proposed point of interconnection. This selection by the utility does not necessarily indicate, after application of the screens or study or both, that this would be the circuit to which the distributed generation facility ultimately will be connected or that interconnection will occur. The applicant must request additional preapplication reports if information about multiple points of interconnection is requested. Subject to paragraph 45.4(2)*"d"* and other confidentiality concerns identified by the utility, the preapplication report will include the following information:

(1) Total capacity (in MW) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed point of interconnection.

(2) Existing aggregate generation capacity (in MW) interconnected to a substation/area bus, bank or circuit (i.e., amount of generation online) likely to serve the proposed point of interconnection.

(3) Aggregate queued generation capacity (in MW) for a substation/area bus, bank or circuit (i.e., amount of generation in the queue) likely to serve the proposed point of interconnection.

(4) Available capacity (in MW) of substation/area bus or bank and circuit likely to serve the proposed point of interconnection (i.e., total capacity less the sum of existing aggregate generation capacity and aggregate queued generation capacity).

(5) Substation nominal distribution voltage or transmission nominal voltage or both if applicable.

(6) Nominal distribution circuit voltage at the proposed point of interconnection.

(7) Approximate circuit distance between the proposed point of interconnection and the substation.

(8) Actual or estimated peak load and minimum load data, including daytime minimum load and absolute minimum load, when applicable, for relevant line sections.

(9) Number and rating of protective devices and number and type (standard, bi-directional) of voltage-regulating devices between the proposed point of interconnection and the substation/area and whether or not the substation has a load tap changer.

(10) Number of phases available at the proposed point of interconnection. If it is a single phase, distance from the three-phase circuit.

(11) Limiting conductor ratings from the proposed point of interconnection to the distribution substation.

(12) Whether the point of interconnection is located on a spot network, grid network, or radial supply.

(13) Based on the proposed point of interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short-circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

d. The preapplication report need only include existing data. A preapplication report request does not obligate the utility to conduct a study or other analysis of the proposed generator in the event that data is not readily available. If the utility cannot complete all or some of the preapplication report due to lack of available data, the utility shall provide the applicant with a preapplication report that includes the data that is available. The provision of information on "available capacity" pursuant to subparagraph 45.4(2)*"c"*(4) does not imply that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process and data provided in the preapplication report may become outdated at the time of the submission of the complete interconnection request. Notwithstanding any of the provisions of this subrule, the utility shall, in good faith, include data in the preapplication report that represents the best available information at the time of reporting.

~~45.4(2)~~ 45.4(3) Utilities shall specify the fee by level that the applicant shall remit to process the interconnection request. The fee shall be specified in the interconnection request forms. ~~Utilities may charge a fee by level that applicants must remit in order to process an interconnection request.~~ The utilities shall not charge more than the fees as specified ~~in the Standard Application Forms in Appendix A (199—45.14(476)) and Appendix C (199—45.16(476)).~~ below:

a. Level 1 - $125 application fee and up to an additional $125 if the utility performs a witness test as specified in subrule 45.5(10).

b. Level 2 - $250 application fee plus $1 per kVA and up to an additional $125 if the utility performs a witness test as specified in subrule 45.5(10).

c. Level 3 - $500 application fee plus $2 per kVA.

d. Level 4 - $1,000 application fee plus $2 per kVA.

~~45.4(3)~~ 45.4(4) Interconnection requests may be submitted electronically, if agreed to by the parties.

ITEM 12. Amend subrule 45.5(6) as follows:

45.5(6) ~~When an applicant is not currently a customer of the utility at the proposed site, the~~ The applicant shall provide, upon utility request, proof of the applicant's legal right to control the ~~site, evidenced by the applicant's name on a property tax bill, deed, lease agreement or other legally binding contract~~ site(s). Site control may be demonstrated through:

a. Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing, the distributed generation facility;

b. An option to purchase or acquire a leasehold site for such purpose; or

c. Exclusivity or other business relationship between the interconnection customer and the entity having the right to sell, lease, or grant the interconnection customer the right to possess or occupy a site for such purpose.

ITEM 13. Amend subrule 45.5(8) as follows:

45.5(8) Any metering required for a distributed generation interconnection shall be installed, operated, and maintained in accordance with the utility's metering rules ~~filed with the board under 199—subrule 20.2(5),~~ and inspection and testing practices ~~adopted under rule 199—20.6(476)~~ defined in 199—Chapter 20. Any such metering requirements shall be identified in the ~~Standard~~ Level 1 Interconnection Request Application form and Distributed Generation Interconnection Agreement or the Levels 2 to 4 Distributed Generation Interconnection Request Agreement executed between the interconnection customer and the utility.

ITEM 14. Amend subrule 45.6(2) as follows:

45.6(2) Lab-certified interconnection equipment shall not require further design testing or production testing, as specified by IEEE Standard 1547, Sections 5.1 and 5.2, or additional interconnection equipment modification to meet the requirements for expedited review; however, ~~nothing in this subrule shall preclude the need for an interconnection installation evaluation,~~ the applicant shall conduct all commissioning tests~~,~~ or periodic testing as specified by IEEE Standard 1547, Sections 5.3, 5.4, and 5.5~~, or for a witness test conducted by a utility~~. The utility may conduct additional witness tests, but no more frequently than annually.

ITEM 15. Amend paragraph **45.7(1)"b"** as follows:

b. The distributed generation facility has a nameplate capacity rating of ~~10~~ 20 kVA or less; and

ITEM 16. Amend subrule 45.7(2) as follows:

45.7(2) A utility shall use Level 2 procedures for evaluating interconnection requests when:

a. The applicant has filed a Level 2 application; and

b. The nameplate capacity rating is 2 MVA or less for non-inverter-based systems. The Level 2 eligibility for inverter-based systems can be based on the following table.

Line Voltage	Level 2 Eligibility Regardless of Location	Level 2 Eligibility on a Mainline and < 2.5 Electrical Circuit Miles from Substation
< 5 kV	< 500 kVA	< 500 kVA
> 5 kV and < 15 kV	< 2 MVA	< 3 MVA
> 15 kV and < 30 kV	< 3 MVA	< 4 MVA
> 30 kV and < 69 kV	< 4 MVA	< 5 MVA

For purposes of this table, a mainline is the three-phase backbone of a circuit; and

c. The interconnection equipment proposed for the distributed generation facility is lab-certified; and

d. The proposed interconnection is to a radial distribution circuit or a spot network limited to serving one customer; and

e. No construction of facilities by the utility shall be required to accommodate the distributed generation facility, other than minor modifications provided for in subrule 45.9(6).

ITEM 17. Amend subrule 45.8(2) as follows:

45.8(2) The Level 1 interconnection shall use the following procedures:

a. The applicant shall submit an interconnection request using the ~~appropriate Standard~~ Level 1 Interconnection Request Application ~~Form in Appendix A (199—45.14(476))~~ form and Distributed Generation Interconnection Agreement along with the Level 1 application fee.

b. to *d.* No change.

e. Otherwise, the utility shall approve the interconnection request and provide to the applicant a signed version of the standard "Conditional Agreement to Interconnect Distributed Generation Facility" in ~~Appendix A (199—45.14(476))~~ the Level 1 Interconnection Request Application form and Distributed Generation Interconnection Agreement subject to the following conditions:

(1) The distributed generation facility has been approved by local or municipal electric code officials with jurisdiction over the interconnection;

(2) The ~~Standard~~ Certificate of Completion ~~in Appendix B (199—45.15(476))~~ form has been returned to the utility. Completion of local inspections may be designated on inspection forms used by local inspecting authorities;

(3) The witness test has either been successfully completed or waived by the utility in accordance with Section (2)(c)(ii) of the Terms and Conditions for Interconnection in ~~Appendix A (199—45.14(476))~~ the Level 1 Interconnection Request Application form and Distributed Generation Interconnection Agreement; and

(4) The applicant has signed the standard "Conditional Agreement to Interconnect Distributed Generation Facility" in ~~Appendix A (199—45.14(476))~~ the Level 1 Interconnection Request Application form and Distributed Generation Interconnection Agreement. When an applicant does not sign the agreement within 30 business days after receipt of the agreement from the utility, the interconnection request is deemed withdrawn unless the applicant requests to have the deadline extended for no more than 15 business days. An initial request for extension shall not be denied by the utility, but subsequent requests may be denied.

f. If a distributed generation facility is not approved under a Level 1 review, and the utility's reasons for denying Level 1 status are not subject to dispute, the applicant may submit a new interconnection request for consideration under Level 2, Level 3, or Level 4 procedures. The date of the completed Level 1 interconnection request shall be retained and shall be used to determine the review order position for subsequent Level 2 to 4 applications, provided the request is made by the applicant within 15 business days after notification that the Level 1 interconnection request is denied.

ITEM 18. Amend paragraph **45.9(1)"i"** as follows:

i. A distributed generation facility, in aggregate with other generation interconnected to the distribution side of a substation transformer feeding the circuit where the distributed generation

facility proposes to interconnect, may not exceed 10 MVA in an area where there are transient stability limitations to generating units located in the general electrical vicinity, as publicly posted by the ~~Mid-Continent Area Power Pool (MAPP),~~ Midwest Reliability Organization (MRO), the SERC Reliability Corporation (SERC), the ~~Midwest~~ Midcontinent Independent ~~Transmission~~ System Operator, Inc. (MISO)~~, or the Midwest Reliability Organization (MRO)~~ or the Southwest Power Pool (SPP).

ITEM 19. Amend paragraph **45.9(2)"a"** as follows:

a. The applicant submits an interconnection request using the ~~appropriate Standard~~ Levels 2 to 4 Interconnection Request Application ~~Form in Appendix C (199—45.16(476))~~ form along with the Level 2 application fee.

ITEM 20. Amend subrule 45.9(3) as follows:

45.9(3) When a utility determines that the interconnection request passes the Level 2 screening criteria, or the utility determines that the distributed generation facility can be interconnected safely and will not cause adverse system impacts, even if ~~it~~ the facility fails one or more of the Level 2 screening criteria, ~~it~~ the utility shall provide the applicant with the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement ~~in Appendix D (199—45.17(476))~~ within three business days of the date the utility makes its determination.

ITEM 21. Amend subrule 45.9(4) as follows:

45.9(4) Within ~~35~~ 30 business days after issuance by the utility of the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement, the applicant shall sign and return the agreement to the utility. If the applicant does not sign and return the agreement within ~~35~~ 30 business days, the interconnection request shall be deemed withdrawn unless the applicant requests a 15-business-day extension in writing before the end of the ~~35~~ 30-day period. The initial request for extension may not be denied by the utility. When the utility conducts an additional review under the provisions of subrule 45.9(6), the interconnection of the distributed generation facility shall proceed according to milestones agreed to by the parties in the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement.

ITEM 22. Amend subrule 45.9(5) as follows:

45.9(5) The ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement is not final until:

a. All requirements in the agreement are satisfied;

b. The distributed generation facility is approved by the electric code officials with jurisdiction over the interconnection;

c. The applicant provides the ~~Standard~~ Certificate of Completion ~~in Appendix B (199—45.15(476))~~ form to the utility. Completion of local inspections may be designated on inspection forms used by local inspecting authorities; and

d. The witness test has either been successfully completed or waived by the utility in accordance with Article 2.1.1 of the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement.

ITEM 23. Amend subrule 45.9(6) as follows:

45.9(6) ~~Additional~~ Supplemental review may be appropriate when a distributed generation facility fails to meet one or more of the Level 2 screens. The utility shall offer to perform ~~additional~~ a supplemental review to determine whether there are minor modifications to the distributed generation facility or electric distribution system that would enable the interconnection to be made safely ~~and so that it will not cause~~ without causing adverse system impacts. ~~The utility shall provide the applicant with a nonbinding estimate for the costs of additional review and the costs of minor modifications to the electric distribution system. The utility shall undertake the additional review only after the applicant pays for the additional review. The utility shall undertake the modifications only after the applicant pays for the modifications.~~ To accept the offer of a supplemental review, the applicant shall agree in writing and submit a deposit for the estimated costs of the supplemental review in the amount of the utility's good-faith nonbinding estimate of the costs for such review, both within 15 business days of the offer. If the written agreement and deposit have not been received by the utility within that time

frame, the interconnection request shall continue to be evaluated under the applicable study process unless it is withdrawn by the applicant.

a. The applicant may specify the order in which the utility will complete the screens described in paragraph 45.9(6)*"d."*

b. The applicant shall be responsible for the utility's actual costs for conducting the supplemental review. The applicant must pay any review costs that exceed the deposit within 20 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the utility will return such excess within 20 business days of the date of the invoice without interest.

c. Within 30 business days following receipt of the deposit for a supplemental review, the utility shall:

(1) Perform a supplemental review using the screens set forth below;

(2) Notify the applicant in writing of the results; and

(3) Include with the notification copies of the analysis and data underlying the utility's determinations based on the screens.

d. Unless the applicant provided instructions on how to respond to the failure of any of the supplemental review screens identified below at the time the applicant accepted the offer of a supplemental review, the utility shall notify the applicant following the failure of any of the screens; or if the utility is unable to perform the screen described in subparagraph 45.9(6)*"d"*(1) within 2 business days of making such determination, the utility shall obtain the applicant's permission to: (a) continue evaluating the proposed interconnection under this subparagraph; (b) terminate the supplemental review and continue evaluating the small generating facility; or (c) terminate the supplemental review upon withdrawal of the interconnection request by the applicant.

(1) Minimum Load Screen: Where 12 months of line section minimum load data (including onsite load but not station service load served by the proposed small generating facility) are available, can be calculated, can be estimated from existing data, or can be determined from a power flow model, the aggregate generating facility capacity on the line section must be less than 100 percent of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed small generating facility. If minimum load data is not available, or cannot be calculated, estimated or determined, the utility shall include the reason(s) that it is unable to calculate, estimate or determine minimum load in its supplemental review results notification under paragraph 45.9(6)*"c"* above.

1. The type of generation used by the proposed small generating facility will be taken into account when calculating, estimating, or determining circuit or line section minimum load relevant for the application of screen. Solar photovoltaic (PV) generation systems with no battery storage use daytime minimum load (i.e., 10 a.m. to 4 p.m. for fixed panel systems and 8 a.m. to 6 p.m. for PV systems utilizing tracking systems), while all other types of generation use absolute minimum load.

2. When this screen is being applied to a small generating facility that serves some station service load, only the net injection into the utility's electric system will be considered as part of the aggregate generation.

3. Utility will not consider generating facility capacity known to be already reflected in the minimum load data as part of the aggregate generation for purposes of this screen.

(2) Voltage and Power Quality Screen: In aggregate with existing generation on the line section: (1) the voltage regulation on the line section can be maintained in compliance with relevant requirements under all system conditions; (2) the voltage fluctuation is within acceptable limits as defined by the Institute of Electrical and Electronics Engineers (IEEE) Standard 1453, or utility practice similar to IEEE Standard 1453; and (3) the harmonic levels meet IEEE Standard 519 limits.

(3) Safety and Reliability Screen: The location of the proposed small generating facility and the aggregate generation capacity on the line section do not create impacts to safety or reliability that cannot be adequately addressed without application of the study process. The utility shall give due consideration to the following and other factors in determining potential impacts to safety and reliability in applying this screen.

1. Whether the line section has significant minimum load levels dominated by a small number of customers (e.g., several large commercial customers).

2. Whether the load along the line section is uniform or even.

3. Whether the proposed small generating facility is located in close proximity to the substation (i.e., less than 2.5 electrical circuit miles) and whether the line section from the substation to the point of interconnection is a mainline rated for normal and emergency ampacity.

4. Whether the proposed small generating facility incorporates a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time.

5. Whether operational flexibility is reduced by the proposed small generating facility, such that transfer of the line section(s) of the small generating facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues.

6. Whether the proposed small generating facility employs equipment or systems certified by a recognized standards organization to address technical issues such as, but not limited to, islanding, reverse power flow, or voltage quality.

e. If the proposed interconnection passes the supplemental screens described in subparagraphs 45.9(6)*"d"*(1), (2), and (3), the interconnection request shall be approved and the utility will provide the applicant with an executable interconnection agreement within the time frames established in paragraphs 45.9(6)*"f"* and *"g."* If the proposed interconnection fails any of the supplemental review screens and the applicant does not withdraw its interconnection request, it shall continue to be evaluated under the Level 4 study process consistent with rule 199—45.11(476).

f. If the proposed interconnection passes the supplemental screens described in subparagraphs 45.9(6)*"d"*(1), (2), and (3) and does not require construction of facilities by the utility on its own system, the interconnection agreement shall be provided within 10 business days after the notification of the supplemental review results.

g. If interconnection facilities or minor modifications to the utility's system are required for the proposed interconnection to pass the supplemental screens described in subparagraphs 45.9(6)*"d"*(1), (2), and (3) and the applicant agrees to pay for the modifications to the utility's electric system, the interconnection agreement, along with a nonbinding good-faith estimate for the interconnection facilities or minor modifications or both, shall be provided to the applicant within 15 business days after receiving written notification of the supplemental review results.

h. If the proposed interconnection would require more than interconnection facilities or minor modifications to the utility's system to pass the supplemental screens described in subparagraphs 45.9(6)*"d"*(1), (2), and (3), the utility shall notify the applicant at the same time it notifies the applicant with the supplemental review results, that the interconnection request shall be evaluated under the Level 4 study process unless the applicant withdraws its small generating facility.

ITEM 24. Amend paragraph **45.10(1)"a"** as follows:

a. The applicant shall submit an interconnection request using the ~~appropriate Standard~~ Levels 2 to 4 Interconnection Request Application ~~Form in Appendix C (199—45.16(476))~~ form along with the Level 3 application fee.

ITEM 25. Amend subrule 45.10(2) as follows:

45.10(2) For a distributed generation facility that satisfies the criteria in paragraph 45.10(1)*"e"* or 45.10(1)*"f,"* the utility shall approve the interconnection request and provide the applicant with the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement ~~in Appendix D (199—45.17(476)) for the applicant to sign~~ within three business days of the date the utility makes its determination.

ITEM 26. Amend subrule 45.10(3) as follows:

45.10(3) Within ~~35~~ 30 business days after issuance by the utility of the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement, the applicant shall complete, sign, and return the agreement to the utility. If the applicant does not sign the agreement within ~~35~~ 30 business days, the request shall be deemed withdrawn, unless the applicant requests a 15-business-day extension in writing before the end of the ~~35~~ 30-day period. An initial request for extension may not be denied by the utility. After the agreement is signed by the parties, interconnection of the distributed generation facility shall

proceed according to any milestones agreed to by the parties in the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement.

ITEM 27. Amend subrule 45.10(4) as follows:

45.10(4) The ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement shall not be final until:

a. All requirements in the agreement are satisfied; and

b. The distributed generation facility is approved by the electric code officials with jurisdiction over the distributed generation facility; and

c. The applicant provides the ~~Standard~~ Certificate of Completion ~~in Appendix B (199—45.15(476))~~ form to the utility; and

d. The witness test has either been successfully completed or waived by the utility in accordance with Article 2.1.1 of the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement.

ITEM 28. Amend subrule 45.11(1) as follows:

45.11(1) The applicant submits an interconnection request using the ~~appropriate Standard~~ Levels 2 to 4 Interconnection Request Application ~~Form in Appendix C (199—45.16(476))~~ form along with the Level 4 application fee.

ITEM 29. Amend paragraph **45.11(4)"b"** as follows:

b. Standard Level 4 study review procedures.

(1) No change.

(2) Feasibility study. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* an interconnection feasibility study (subrule 45.11(5)) shall be performed.

1. The utility shall provide the applicant a copy of the ~~Standard~~ Interconnection Feasibility Study Agreement ~~in Appendix E (199—45.18(476))~~ or a mutually agreed-upon alternative form, plus a description of the study and a nonbinding estimate of the cost to perform the study.

2. and 3. No change.

(3) System impact study. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* an interconnection system impact study (subrule 45.11(6)) shall be performed.

1. The utility shall provide the applicant a copy of the ~~Standard~~ Interconnection System Impact Study Agreement ~~in Appendix F (199—45.19(476))~~ or a mutually agreed-upon alternative form, plus an outline of the scope of the study and a nonbinding estimate of the cost to perform the study.

2. and 3. No change.

(4) Facilities study. Unless waived or combined with other studies pursuant to paragraph 45.11(4)*"a,"* an interconnection facilities study (subrule 45.11(7)) shall be performed.

1. The utility shall provide the applicant a copy of the ~~Standard~~ Interconnection Facilities Study Agreement ~~in Appendix G (199—45.20(476))~~ or a mutually agreed-upon alternative form, plus an outline of the scope of the study and a nonbinding estimate of the cost to perform the study.

2. and 3. No change.

ITEM 30. Amend paragraph **45.11(5)"e"** as follows:

e. Either party can require that the ~~Standard~~ Interconnection Feasibility Study Agreement ~~in Appendix E (199—45.18(476))~~ be used. However, if both parties agree, an alternative form can be used.

ITEM 31. Amend subrule 45.11(6) as follows:

45.11(6) Interconnection system impact study. An interconnection system impact study evaluates the impact of the proposed interconnection on both the safety and reliability of the utility's electric distribution system. The study identifies and details the system impacts that interconnecting the distributed generation facility to the utility's electric system have if there are no system modifications. It focuses on the potential or actual adverse system impacts identified in the interconnection feasibility study, including those that were identified in the scoping meeting. The study shall consider all other distributed generation facilities that, on the date the interconnection system impact study is commenced, are directly interconnected with the utility's system, have a pending higher review order position to interconnect to the electric distribution system, or have signed an interconnection agreement. The

utility shall coordinate with any affected system owners regarding potential impacts to affected systems in a timely manner and include the results of such studies along with the system impacts study.

a. Unless waived or combined with other studies by agreement of the parties pursuant to paragraph 45.11(4)*"a,"* an interconnection system impact study shall be performed when either a potential adverse system impact is identified in the interconnection feasibility study, or an interconnection feasibility study has not been performed. Before performing the study, the utility shall provide the applicant an outline of the scope of the study and a nonbinding estimate of the cost to perform the study. The interconnection system impact study shall include any pertinent elements from among the following:

(1) A load flow study;
(2) Identification of affected systems and any subsequent affected system study;
(3) An analysis of equipment interrupting ratings;
(4) A protection coordination study;
(5) Voltage drop and flicker studies;
(6) Protection and set point coordination studies;
(7) Grounding reviews; and
(8) Impact on system operation.

b. An interconnection system impact study shall consider any necessary criteria from among the following:

(1) A short-circuit analysis;
(2) A stability analysis;
(3) Alternatives for mitigating adverse system impacts on affected systems;
(4) Voltage drop and flicker studies;
(5) Protection and set point coordination studies; ~~and~~
(6) Grounding reviews.~~;~~ and
(7) Results from the affected system study.

c. The final interconnection system impact study shall provide the following:

(1) The underlying assumptions of the study;
(2) The results of the analyses;
(3) A list of any potential impediments to providing the requested interconnection service;
(4) Required distribution upgrades; and
(5) A nonbinding estimate of cost and time to construct any required distribution upgrades.

d. Either party can require that the ~~Standard~~ Interconnection System Impact Study Agreement ~~in Appendix F (199—45.19(476))~~ be used. However, if both parties agree, an alternative form can be used.

ITEM 32. Amend paragraph **45.11(7)"d"** as follows:

d. Upon completion of the interconnection facilities study, and after the applicant agrees to pay for the interconnection facilities and distribution upgrades identified in the interconnection facilities study, the utility shall provide the applicant with the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement ~~in Appendix D (199—45.17(476)) for the applicant to sign~~ within three business days of the date the utility makes its determination.

ITEM 33. Amend paragraph **45.11(7)"f"** as follows:

f. Either party can require that the ~~Standard~~ Interconnection Facilities Study Agreement ~~in Appendix G (199—45.20(476))~~ be used. However, if both parties agree, an alternative form can be used.

ITEM 34. Amend subrule 45.11(8) as follows:

45.11(8) When a utility determines, as a result of the studies conducted under a Level 4 review, that it is appropriate to interconnect the distributed generation facility, the utility shall provide the applicant with the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement ~~in Appendix D (199—45.17(476))~~. If the interconnection request is denied, the utility shall provide the applicant with a written explanation as to its reasons for denying interconnection. If denied, the interconnection request does not retain its position in the review order.

ITEM 35. Amend subrule 45.11(9) as follows:

45.11(9) Within 30 business days after receipt of the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement, the applicant shall provide all necessary information required of the applicant by the agreement, and the utility shall develop all other information required of the utility by the agreement. After completing the agreement with the additional information, the utility will transmit the completed agreement to the applicant. Within 30 business days after receipt of the completed agreement, the applicant shall sign and return the completed agreement to the utility. If the applicant does not sign and return the agreement within 30 business days after receipt, the interconnection request shall be deemed withdrawn, unless the applicant requests in writing to have the deadline extended by no more than 15 business days, prior to the expiration of the 30-business-day period. The initial request for extension may not be denied by the utility. If the applicant does not sign and return the agreement after the 15-business-day extension, the interconnection request shall be deemed withdrawn. If withdrawn, the interconnection request does not retain its position in the review order. When construction is required, the interconnection of the distributed generation facility shall proceed according to milestones agreed to by the parties in the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement.

ITEM 36. Amend subrule 45.11(10) as follows:

45.11(10) The ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement is not final until:

a. The requirements of the agreement are satisfied; and

b. The distributed generation facility is approved by electric code officials with jurisdiction over the interconnection; and

c. The applicant provides the ~~Standard~~ Certificate of Completion ~~in Appendix B (199—45.15(476))~~ form to the utility. Completion of local inspections may be designated on inspection forms used by local inspecting authorities; and

d. The witness test has either been successfully completed or waived by the utility in accordance with Article 2.1.1 of the ~~Standard~~ Levels 2 to 4 Distributed Generation Interconnection Agreement ~~in Appendix D (199—45.17(476))~~.

ITEM 37. Amend subrules 45.13(1) and 45.13(2) as follows:

45.13(1) For each completed interconnection request received by the utility, the utility shall maintain records of the following for a minimum of three years:

a. The date the interconnection application was received as complete, the total AC nameplate capacity, and the fuel type of the distributed generation facility;

b. The level of review received (Level 1, Level 2, Level 3, or Level 4) and whether the project failed any initial screens, and if so and readily determinable, which screens; whether the facility received a supplemental review; and whether any impact or facility study was conducted; ~~and~~

c. Whether the interconnection was approved, ~~or~~ denied~~.~~, or withdrawn and the date of that action; and

d. Whether the facility is operational and, if so, the date the electric utility authorized the facility to begin operation.

45.13(2) ~~Beginning May 1, 2011, each~~ Each utility shall file a ~~nonconfidential annual~~ report by May 1 of each year detailing the information required in subrule 45.13(1) for the previous calendar year.

ITEM 38. Rescind rules **199—45.14(476)** to **199—45.20(476)**.

[Filed 12/22/16, effective 2/22/17]
[Published 1/18/17]

EDITOR'S NOTE: For replacement pages for IAC, see IAC Supplement 1/18/17.